



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Hannah Pomerantz; Venice Pope	Project Number J0317
Project Title Kickin' Kinetics: When Kicking a Soccer Ball Does the Angle of the Foot Affect the Ball's Placement in the Net?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of our experiment was to figure out whether changing the angle of the foot when kicking a soccer ball for a penalty kick affects its placement in the net. Our hypothesis was that different angles of the foot would affect where the ball went in the goal. We also stated that we could find three different angles of the foot to get the ball consistently into three equal horizontal sections of the goal.</p> <p>Methods/Materials To test our hypothesis we built a machine that would kick a soccer ball with consistent force to eliminate human error. Since we couldn't produce a large enough force to get a size five soccer ball into the goal, we sized down our machine, goal, shoe size, waist height, ball size, and distance to the goal to be 66.44% of its actual size. The reason we sized everything down to be 66.44% of its actual size is because that is what the size 1 ball was compared to the size 5 ball. We built our machine so we could manipulate the angles of the foot from 90 to 140 degrees, which we measured and marked.</p> <p>Results After conducting our tests, we determined three angles of the foot to consistently get the ball into each section of the net. 115 degrees got the ball into the top, 125 got it into the middle, and 130 - 140 got it into the bottom section.</p> <p>Conclusions/Discussion We concluded that our hypothesis was correct and we found three consistent angles of the foot that got the ball into the three sections of the goal. So when you are kicking a soccer ball for a penalty kick, know that the angle of your foot directly affects where the ball goes in the net.</p>	
Summary Statement The objective of our project was to figure out whether changing the angle of your foot when kicking a soccer ball for a penalty kick affects the ball's placement in the goal.	
Help Received Venice's father helped us put together the machine.	